Heterotopic Ossification Related Contractures: Success with Bodyweight Stretches

Jill Comstock, MSOT; Kristen Tinlin, DPT; Rajiv Sood MD, FACS
Richard M. Fairbanks Burn Center

Introduction

- Heterotopic Ossification (HO) occurs following a trauma and is a complication in therapy recovery from a burn injury. Burn literature reveals the incidence of HO is present in approximately 2% of the burn population.
- There is limited evidence supporting bodyweight stretches in the treatment of HO related contractures.[1] When present, HO can result in a loss of range of motion (ROM) and significant pain which affects quality of life and limits independence with desired occupations.

Methods

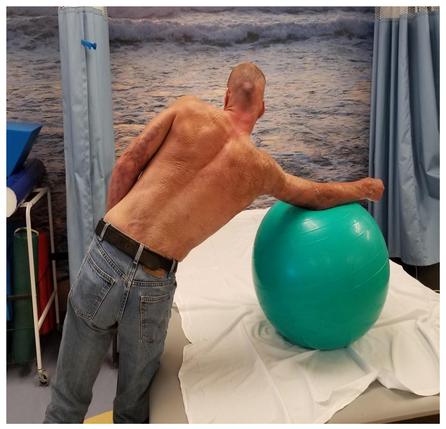
- Two patients were identified with a HO diagnosis and upper extremity joint ROM loss that successfully regained motion without surgical intervention.
- Retrospective chart reviews were completed comparing demographics, hospital course, timing of HO diagnosis, outpatient burn therapy frequency and duration, ROM progress, treatment interventions, and time to resolve ROM deficits.

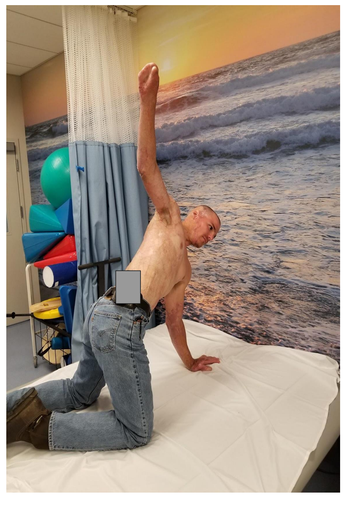
Case Review Comparison

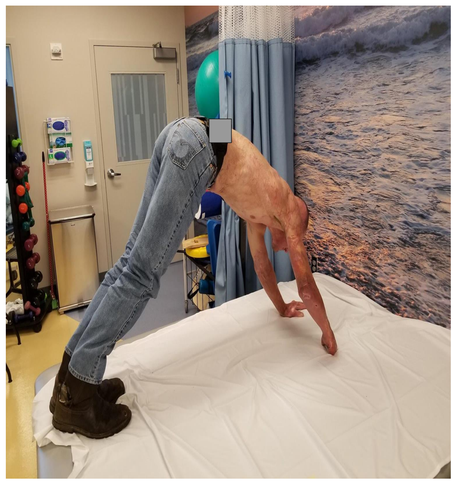
	Patient A	Patient B
TBSA	65%	63%
Age/ Sex	29 y.o Male	28 y.o Male
Joint Affected	Right elbow	Right Shoulder
Hospital Stay Acute Rehab Stay	86 days 54 days	75 days 27 days
Initial Active ROM Final Active ROM	80° Elbow Flexion 140° Elbow Flexion	90° Shoulder Flexion 160° Shoulder Flexion
Total ROM Improvement	60 Degrees	70 Degrees
Therapy Frequency/Duration	1x weekly for 4 months, then 1x monthly for 4 months	3x weekly for 4 months
Time to Resolve ROM Deficit	284 Days	125 Days
Interventions Resulting in Greatest ROM Gains	Bodyweight stretches, aggressive self performed passive stretches	Bodyweight stretches: planks and wall stretches, yoga, total body strengthening

Intervention

- Bodyweight exercises were initiated to maximize end range stretches and total body strengthening. Interventions included planks, modified yoga positions, push ups and pull ups.
- Both patients demonstrated a high pain tolerance and motivation to progress stretches to end range that resulted in achieving maximum ROM gains.



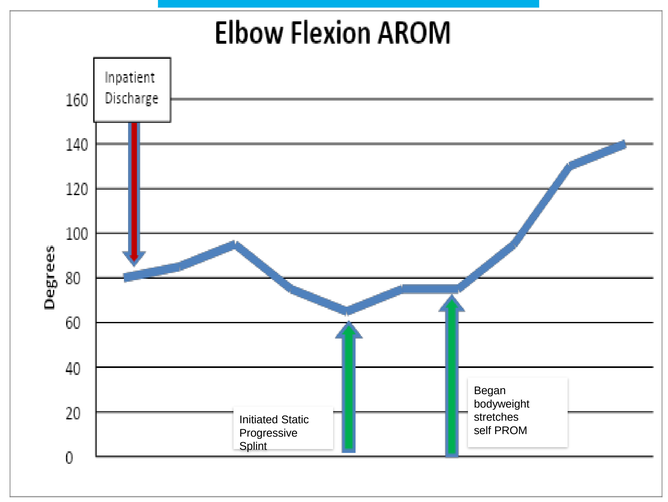




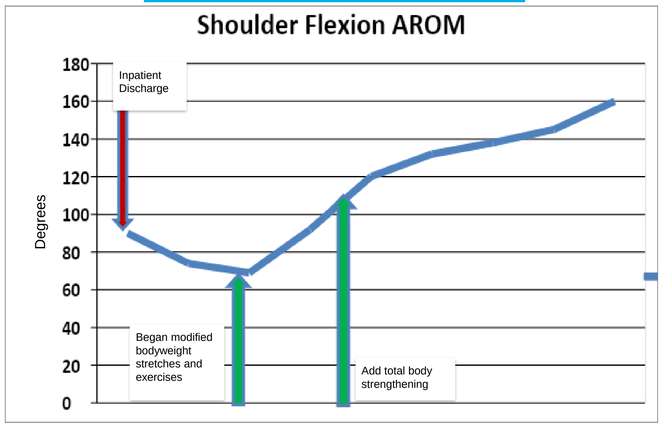
Results

- The most significant ROM gains were observed after initiating bodyweight exercises to maximize end range stretches and total body strengthening.

Patient A ROM Progress



Patient B ROM Progress



Conclusion

- Using bodyweight as an external force strongly contributed to significant ROM improvements and remediation of HO related contractures.
- Higher therapy dosage with a frequency of 3x weekly resulted in quicker resolution of ROM deficits as compared to 1x weekly dosage.

References

1. Kornhaber, R., Foster, N., Edgar, D., Visentin, D., Ofir, E., Haik, J., & Harats, M. (2017). The development and impact of heterotopic ossification in burns: a review of four decades of research. *Scars, Burns & Healing*, *3*, 205951311769565. doi: 10.1177/2059513117695659